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Our Case No. 8864/28

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Griffith D. Neal et al.

Serial No.: 09/775,242

Filing Date: February 1, 2001

For: MOTOR WITH STATOR MADE FROM LINEAR CORE PREFORM

Examiner: Joseph Waks

Group Art Unit No.: 2834

AMENDMENT AND RESPONSE TO RESTRICTION REQUIREMENT

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In response to the Office Action mailed April 4, 2002, please enter the following amendment and consider the following remarks.

In The Claims

Please amend claims 1-10 and 26 as follows:

1. (Amended) The method of claim 10 wherein the windings provide multiple conductors that create a plurality of magnetic fields when electrical current is conducted through the conductors and said monolithic body of phase change material substantially encapsulating the conductors and the core holds said core in a toroidal shape.

2. (Amended) The method of claim 10 wherein the packing density of the wire is between about 60 percent and about 80 percent.

3. (Amended) The method of claim 10 wherein the stator core perform is made from metal laminations and the grain structure of the metal in each lamination is oriented in the same general direction.

4. (Amended) The method of claim 3 wherein the phase change material has a coefficient of linear thermal expansion that is similar to the coefficient of linear thermal expansion for the metal laminations.

5. (Amended) The method of claim 10 wherein the phase change material has a coefficient of linear thermal expansion of less than $2x10^{-5}$ in/in/ºF throughout the range of 0-250°F.

6. (Amended) The method of claim 10 wherein the phase change material has a coefficient of linear thermal expansion of less than $1.5x10^{-5}$ in/in/°F throughout the range of 0-250°F.

7. (Amended) The method of claim 10 wherein the phase change material has a coefficient of linear thermal expansion of between about $0.8x10^{-5}$ in/in/°F and about $1.2x10^{-5}$ in/in/°F throughout the range of 0-250°F.

8. (Amended) The method of claim 10 wherein the phase change material has a thermal conductivity of at least 0.7 watts/meter°K at 23°C.

9. (Amended) The method of claim 10 wherein the phase change material comprises polyphenyl sulfide.

10. (Amended) A method of making a stator assembly for a motor comprising:

a) providing a linear stator core preform, wherein said core preform has a first end surface and a second end surface and poles extending along one side thereof;

b) winding wire around said poles to form windings;

c) forming a toroidal core by bringing the first end surface and the second end surface into contact with each other; and

d) substantially encapsulating said toroidal core and windings with a monolithic body of phase change material to form said stator assembly.

26. (Amended) The method of claim 17 wherein the wire wound around said poles provides multiple conductors that create a plurality of magnetic fields when electrical current is conducted through the conductors.

REMARKS

The amendment does not involve new matter. Changes to the claims compared to the previous version of the claims are shown in Appendix A by bracketing deleted words and underlining added words.

Applicants hereby elect to prosecute the claims of Group II, claims 10-25. Claims 1-9 and 26 have been amended to make them dependent on method claims in Group II. It is believed that all of the claims should thus be examined and acted upon in the present application.

Respectfully submitted,

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APPENDIX A

1. (Amended) [A stator assembly comprising:

a) a stator having] The method of claim 10 wherein the windings provide multiple conductors that create a plurality of magnetic fields when electrical current is conducted through the conductors and [a core having a pair of opposing end surfaces in contact with each other forming a toroidal shape; and

b) a] said monolithic body of phase change material substantially encapsulating the conductors and the core [and holding] holds said core in a toroidal shape.

2. (Amended) The [stator assembly] method of claim [1] 10 wherein the [conductors comprise wire windings and the] packing density of the wire is between about 60 percent and about 80 percent.

3. (Amended) The [stator assembly] method of claim [1] 10 wherein the stator core perform is made from metal laminations and the grain structure of the metal in each lamination is oriented in the same general direction.

4. (Amended) The [stator assembly] method of claim 3 wherein the phase change material has a coefficient of linear thermal expansion that is similar to the coefficient of linear thermal expansion for the metal laminations.

5. (Amended) The [stator assembly] method of claim [1] 10 wherein the phase change material has a coefficient of linear thermal expansion of less than $2x10^{-5}$ in/in/°F throughout the range of 0-250°F.

6. (Amended) The [stator assembly] method of claim [1] 10 wherein the phase change material has a coefficient of linear thermal expansion of less than $1.5x10^{-5}$ in/in/°F throughout the range of 0-250°F.

7. (Amended) The [stator assembly] method of claim [1] 10 wherein the phase change material has a coefficient of linear thermal expansion of between about $0.8x10^{-5}$ in/in/°F and about $1.2x10^{-5}$ in/in/°F throughout the range of 0-250°F.

8. (Amended) The [stator assembly] method of claim [1] 10 wherein the phase change material has a thermal conductivity of at least 0.7 watts/meter°K at 23°C.

9. (Amended) The [stator assembly] method of claim [1] 10 wherein the phase change material comprises polyphenyl sulfide.

10. (Amended) A method of making a stator assembly for a motor comprising:

a) providing a linear stator core preform, wherein said core preform has a first end surface and a second end surface and poles extending along one side thereof;

b) winding wire around said poles to form windings;

c) forming a toroidal core by bringing the first end surface and the second end surface into contact with each other; and

d) substantially encapsulating said toroidal core and windings with a monolithic body of phase change material to form said stator assembly.

26. (Amended) [An encapsulated stator comprising:

a) a stator having] The method of claim 17 wherein the wire wound around said poles provides multiple conductors that create a plurality of magnetic fields when electrical current is conducted through the conductors [and a core having a pair of opposing end surfaces in contact with each other forming a toroidal shape; and

b) a monolithic body of phase change material substantially encapsulating the conductors and the core].